

Chapter 40

Case on Postoperative Bleeding After Whipple Procedure

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First Patient

Postoperative Intraluminal Bleeding Diagnosis and Indication for Surgery

A 40-year-old male patient was sent to the emergency department because of obstructive jaundice and abdominal pain. The US and CT scan with double contrast revealed a possible stone in the papilla of Vater with intrahepatic biliary duct dilatation (Fig. 40.1); consequently, an ERCP was proposed. On the ERCP, a polyp mass was found at duodenum, and a stent was introduced through papilla for bile drainage (Fig. 40.2). Biopsies were taken. Moreover, multiple small polyps were seen in the stomach. The possibility of a familial polyposis coli was considered but not confirmed by family history. Post ERCP, the patient developed progressive abdominal pain in the whole abdomen with signs of intestinal obstruction. On the CT scan, an invagination of a big polyp in the small bowel was seen and the patient was operated on. On operation, multiple polyps were palpated in the small bowel and colon. The invaginated part of ileum was resected and a primary side-to-side anastomosis was done. Diagnosis was established as Peutz Jegher syndrome.

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Fig. 40.1 US showing a dilated CBD of 2 cm

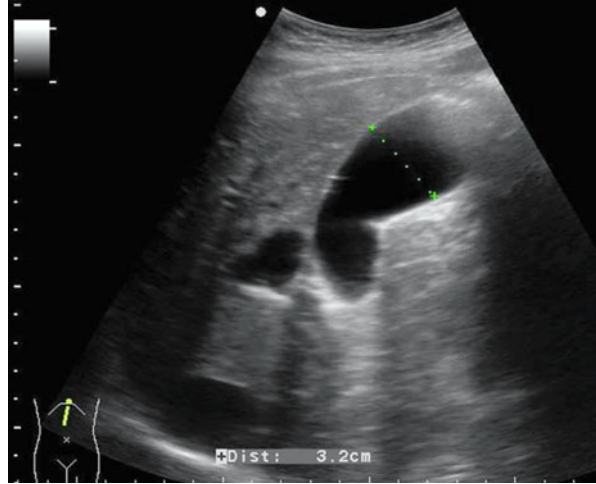


Fig. 40.2 ERCP and sphincterotomy, stop distal CBD, placement of a stent



Operation

CT scan and MRI enteroclysis showed a huge polypoid mass in duodenum and in the small bowel and colon (Figs. 40.3 and 40.4). Policy was executed as treating the multiple polyps in steps, starting with the duodenum. Two attempts were undertaken for resecting the huge polyps by duodenoscopy, but this was considered

Fig. 40.3 CT scan, mass in duodenum with stent in the CBD

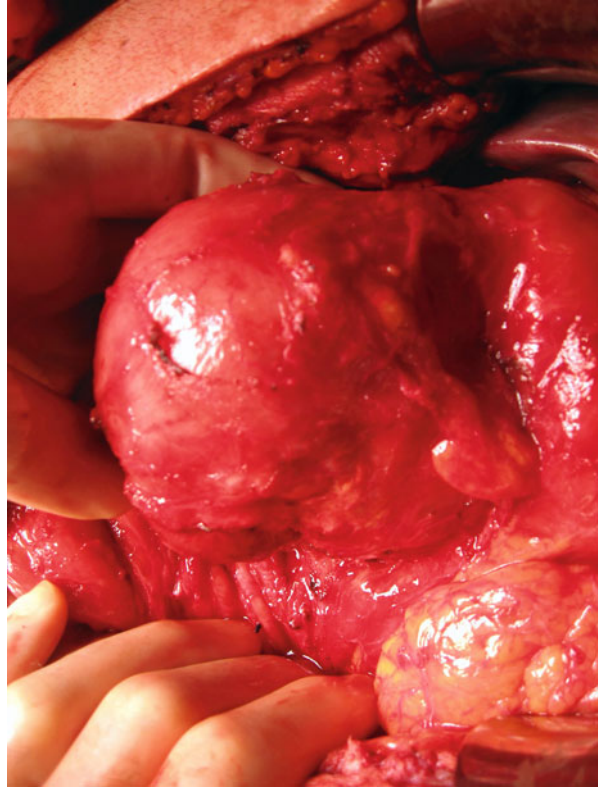


Fig. 40.4 MRI enteroclysis, polyps in jejunum and ileum



unfeasible. Despite a benign histological examination, the possibility of malignancy was considered and a transduodenal polypectomy or a Whipple procedure by laparotomy was decided on. Through subcostal laparotomy, locally resecting the huge

Fig. 40.5 Duodenum aspect during Whipple operation



tumor was considered unachievable without Whipple operation (Fig. 40.5). A duodenopancreatectomy was performed without technical problems and after operation patient was admitted to the general ward.

Postoperative Course: Identification and Treatment of the Complication

Two hours later, the patient started with hematemesis and become hemodynamically unstable. The on duty surgeon decided to reoperate directly due to abundant bleeding and hemodynamic instability. At laparotomy, a dilated gastric remnant was found with dilatation of the loop to the pancreas as produced by clots. The anastomosis to the pancreas was performed end to side and we opened the end loop of the anastomosis in order to inspect first the pancreaticojejunostomy. There was bleeding at the capsule of the pancreas, and we could fix it by means of stitches. The opening was closed in transversal direction in two layers and the stomach emptied of clots.

Pathology

Pathology examination of the specimen showed benign polyps typical for Peutz Jegher syndrome. Patient recovered well after this reoperation and 6 months later he was again operated to remove the small bowel polyps, endoscopically assisted by the gastroenterologist. All polyps were proven to be benign and patient is doing well. The rest of the colon polyps will be resected by colonoscopy program. The patient has no progeny but a genetic study has been performed regarding himself and family members.

Second Patient

Postoperative Intraabdominal Bleeding After Whipple Procedure

Diagnosis and Indication for Surgery

A 69-year-old female patient was evaluated because of silent obstruction jaundice. She had a pancreatic head tumor with double duct lesion suspect for carcinoma and because of a bilirubin less than 150 U/ml, a direct surgical exploration was carried out without previous drainage of the biliary duct.

Operation

A Whipple operation was performed without technical problems and the blood loss was 300 cc.

Postoperative Course: Identification and Treatment of the Complication

She went to the Medium Care Department and after a couple of hours, her blood pressure decreased to 70/40 mm Hg and her hemoglobin and hematocrit decreased 2 points to 5 and 23 % respectively. Coagulation tests were normal.

Her abdomen was painful and lightly distended and clots occluded the left drain.

After diagnosis of postoperative bleeding, a relaparotomy through the subcostal incision was again performed.

Especially in the subhepatic space, 1.5 L blood with clots were found. Inspection showed two venous bleeding points along the portal vein. These were sutured with care in order to maintain the pancreatic and biliary anastomosis without any changes.

A new drain was left in the subhepatic space and patient recovered without complications.

Comments

The lesson in these two patients with immediate postoperative bleeding after a Whipple procedure and hemodynamically instability is that an emergency relaparotomy can fix the problem. Important is that the same surgeon who did the operation will perform the reoperation.

Discussion

Postoperative hemorrhage is another serious complication after pancreatic resection with incidence rates varying from 2 to 20 % and mortality rates exceeding 50 % [1–3]. The variability in incidence and mortality is partly caused by the many different definitions that are being used. The International Study Group of Pancreatic Surgery (ISGPS) developed a definition and proposed the term postpancreatectomy hemorrhage (PPH) [2]. They classified postoperative bleeding based on three criteria: time of onset: early PPH occurring within 24 h postoperatively and late PPH >24 h; location: intraluminal or extraluminal; and severity and impact: mild PPH with a similar clinical impairment and severe PPH with sequential blood transfusions and radiological and/or surgical interventions.

Since the introduction of the ISGPS hemorrhage classification, a number of studies validated the scoring system which is currently generally accepted [3, 4].

Diagnosis and grading. Patients who develop PPH may present with hypotension, tachycardia, decreasing haemoglobin concentration, clinical deterioration, or blood loss through gastrointestinal tract or abdominal drains depending on the site of the bleeding: intraluminal or extraluminal.

Intraluminal bleeding is seen near the anastomotic site, vessels in that area, the surface of the pancreas, or near a gastric ulcer. It generally presents with blood loss through the gastrointestinal tract being hematemesis and melena and blood loss through the nasogastric tube. Intraluminal bleeding will usually manifest as an early hemorrhage. Consensus has been reached considering the cause of early hemorrhage which is likely due to technical failures during the index operation. In the case of intraluminal hemorrhage, endoscopy can be very useful since diagnosing and managing an anastomotic bleeding can be performed simultaneously. Angiography can be used to embolize bleeding from vessels. A recent analysis showed that angiography was performed in over 50 % of patients with PPH after pancreatic surgery and 18 % was subjected to an endoscopy. Both procedures were initially performed to detect the bleeding site [5]. All diagnostic interventions were performed provided that the patient was in a stable hemodynamic condition.

Extraluminal bleeding is seen in the abdominal cavity and may be evident by blood loss through the abdominal drain. The bleeding is caused by vascular erosion, anastomotic ulceration, arterial pseudoaneurysm, or disrupted suture-line caused by POPF, biliary leakage, or intra-abdominal infections and generally present as late PPH. When PPH is suspected, ultrasonography and CT can detect intra-abdominal collections (hematoma as well as abscesses) seen in 70–80 % in late PPH. Furthermore, both procedures can detect pseudoaneurysms. The diagnosis is confirmed by angiography [6].

Management and Outcome

Severe PPH asks for immediate treatment through either radiological intervention, e.g. angiography with embolisation or endoscopy with clips or sclerotherapy, or surgical intervention when the patients' condition is deteriorating rapidly or radiological interventions are unsuccessful or infeasible.

In a recent study on PPH 38 % of patients underwent primary surgery, 57 % underwent primary radiological intervention and 5 % was treated conservatively. More than half of the radiological interventions (54 %) were unsuccessful and a rescue laparotomy still had to be performed. The success rate of radiological coiling in terms of hemostasis was 80 % [5]. In this study endoscopic intervention was used in patients with early intraluminal bleeding realizing that a PJ bleeding generally is outside the reach of endoscopy but can also be managed by interventional angiography. Intraluminal bleeding can disrupt the anastomosis causing a “false” extraluminal bleed since blood is then seen in the abdominal cavity. Early extraluminal PPH (within 24 h after surgery) is generally managed immediately with relaparotomy.

Management of late PPH is different since it is often caused by pseudoaneurysms due to POPF or intra-abdominal infections. An earlier study conducted at the AMC showed that 69 % of patients with late PPH underwent primary surgery and only 9 % was managed by radiological embolisation. In half of all the surgical procedures a vessel ligation was performed. Completion pancreatectomy was performed because of persistent anastomotic leakage [6].

More recently embolisation is performed in the majority of patients.

A meta-analysis regarding the management of late PPH after PD showed 20 small case series with 163 patients in which 47.2 % of patients underwent primary surgery, 44.8 % underwent primary radiological intervention and 8 % was treated conservatively. No significant differences were found regarding to morbidity or mortality between relaparotomy and radiological intervention. Though late haemorrhage is often already associated with other complications, in particular leakage and sepsis, as mentioned earlier this combination is associated with a poor prognosis [7].

The pathophysiology of early PPH makes its management less complicated with better outcomes compared to late PPH. Identifying the importance of a sentinel

bleed and an adequate aggressive approach towards the patients' clinical status will dictate the appropriate treatment. More research is needed to offer any standardized rules in the management of PPH.

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